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Electricity on the Farm

A MONTHLY MAGAZINE FOR THE UP-TO-DATE RURAL FAMILY

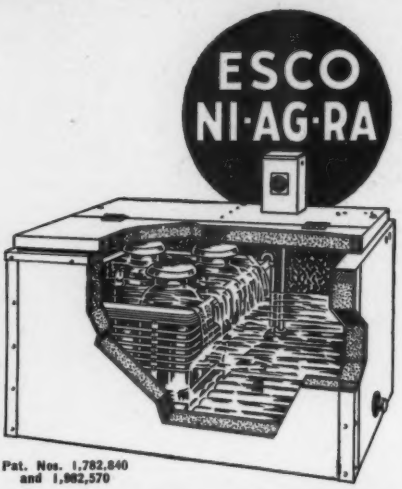
WHAT IS YOUR TITLE FOR THIS PICTURE?

10 Cash awards will be given for the best.

(See inside back cover for details)

FEBRUARY
1937

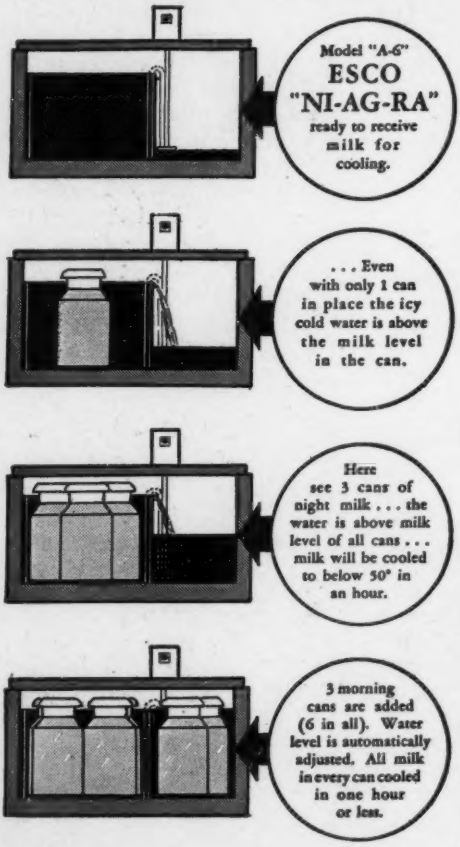
NO OTHER MILK COOLER DOES THIS *for You!*



Pat. Nos. 1,782,840 and 1,982,570

***You get* FASTER COOLING**
NECK-HIGH WATER LEVEL
LOWEST OPERATING COST

All this is done AUTOMATICALLY for you with the NEW PATENTED ESCO "NI-AG-RA" . . . and its NEW, EXCLUSIVE, NECK-HIGH WATER LEVELER.


Model "A-6"
ESCO
"NI-AG-RA"
ready to receive milk for cooling.
. . . Even with only 1 can in place the icy cold water is above the milk level in the can.
Here see 3 cans of night milk . . . the water is above milk level of all cans . . . milk will be cooled to below 50° in an hour.
3 morning cans are added (6 in all). Water level is automatically adjusted. All milk in every can cooled in one hour or less.

LOOK AT THESE PICTURES

See for yourself how all of your milk, both night and morning, is properly cooled *to the top* in every can. . . . The Automatic Neck-High Water Leveler does it!

ICY COLD WATER is always above the milk level of the cans . . . whether you have one can in the cooler or whether it is filled to capacity.

NO OTHER MILK COOLER HAS THIS EXCLUSIVE FEATURE. That is why you owe it to yourself to SEE THE NEW ESCO "NI-AG-RA" before you buy your milk cooler.

CLIP COUPON TODAY

Get New Esco Booklet. . . . Tells why the New Esco "NI-AG-RA" will cool your milk with LESS WORK . . . and at LESS COST.

The New ESCO "NI-AG-RA" Milk Coolers range from 2 to 21 can capacity.

ESCO CABINET CO.

576 East Biddle St. West Chester, Pa.

ESCO CABINET COMPANY
576 E. Biddle St., West Chester, Pa.

Gentlemen:

I am shipping ..... cans of milk a day. Please send me complete information on the new ESCO "NI-AG-RA" Milk Cooler.

Name.....

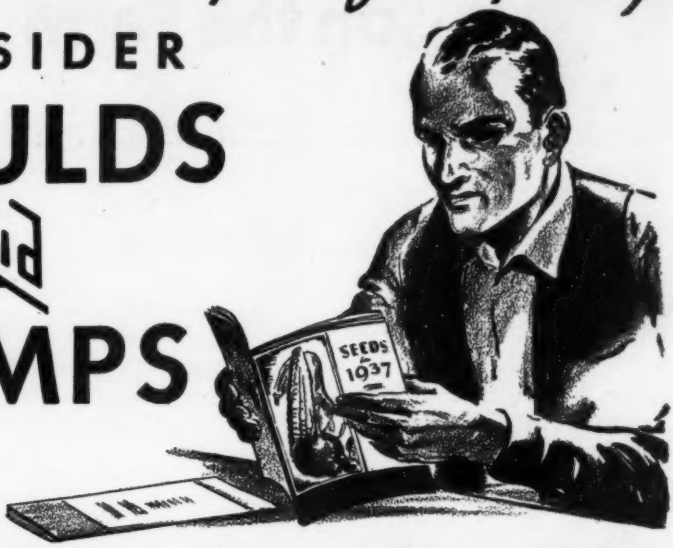
Address.....

P. O..... State.....

Now is the time to plan for Spring

CONSIDER

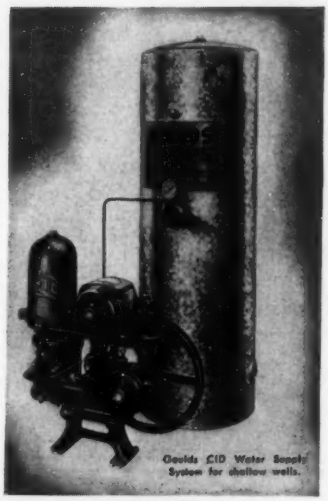
GOULDS CID PUMPS



Plan NOW to install a Goulds CID water supply system this spring. No investment will pay such large returns in added comfort, convenience and profit. Water in abundance will increase the yield, improve the quality of milk and eggs . . . fatten cattle and hogs for market in less time . . . speed up the growth of garden crops. In the home, running water makes possible many improvements . . . kitchen and laundry can be made pleasant, convenient workrooms . . . a modern bathroom will bring your family the glowing health that comes with easy cleanliness.

Goulds CID Water Supply Systems are available for either deep or shallow wells in sizes to meet every capacity requirement. Efficient design keeps pumping costs at a minimum—under average conditions about 2 cents an hour. Extra strength parts carefully made by skilled workmen and completely automatic lubrication assure dependable, trouble-free service month in and month out. Yet Goulds prices are surprisingly low.

If your local dealer does not handle the Goulds line, write for the name of the nearest Goulds Distributor.


Goulds CID Water Supply System for shallow wells.

GOULDS

RUNNING WATER

GOULDS PUMPS, Inc.
340 Fall St.
Seneca Falls, N. Y.
Please send me the name of the nearest Goulds Distributor. I am interested in a pump for ☐ deep well ☐ shallow well service.

Name .....

Street or R.F.D. .....

Place ..... State .....

7749

February, 1937

Electricity on the Farm

Vol. 10, No. 2

EDITORIAL

ELECTRICITY IS SAFE!

In the early days of electrical development, the use of electricity was hazardous, for installations were made in a haphazardous manner and manufacturers of electrical equipment and materials had no safety specifications to guide them.

Today the situation is entirely different. Electrical equipment is safe!

There's no other means of cooking, for example, that can compare with the electrical range in safety. Modern electric irons cannot get hot enough to start a fire. Electric lights have cut fire losses, originating from lighting equipment around farm properties, to a fraction of what they formerly were. In incubating and brooding, electricity has practically eliminated the fire hazard.

Danger to life, where installations are properly made, is negligible.

Almost every development designed to ease the labors of man brings with it some new hazard. Consider, for example, the automobile, the air conditioning system with its ducts which may carry fire throughout a structure, and the house-heating oil burner with its fire hazards.

But electricity in its present stage of development reduces rather than increases fire and life hazards.

The safest farm home will ultimately be the one which is most fully electrified.

FRED SHEPPERD.

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CHICAGO: 6 No. Michigan Ave.—W. S. CLEVENGER, Western Manager; L. M. ROCHE, Western Representative
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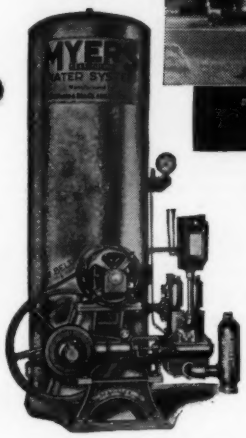
Where WATER *comes first...*

Fig. 2700

Fig. 2510



You can rely on MYERS

Nowhere does running water at the turn of a faucet bring greater convenience, lighten more tasks or increase profits so perceptibly as on the farm. But here, of all places, an individual water system must be absolutely dependable if it is to give satisfaction. Thousands of families can testify to the long service life and trouble-proof performance of MYERS Water Systems. You can rely on a MYERS to deliver water at the lowest possible cost per gallon. Styles and sizes to suit all needs; for deep or shallow wells. Write today for interesting free booklet.

MYERS Electric Water Systems are entirely automatic — self-starting, self-stopping, self-oiling. Mail the coupon today for free information.

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(14-7)

MYERS WATER SYSTEMS

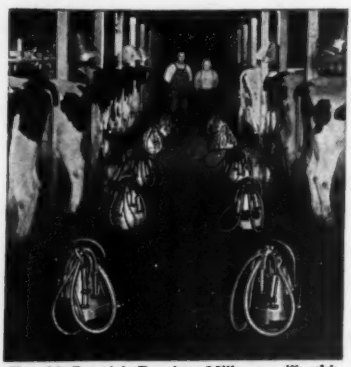
Take Off Your Hat To The MYERS

Cool Their *Full-Rated Can Capacity* Below 50 Degrees in an Hour or Less *Twice* Every 24 Hours at Low Cost

This is why McCormick-Deering Milk Coolers are so highly recommended. Bacteria get little chance to grow when milk is cooled so quickly. Pneumatic water agitation, an **exclusive** patented McCormick-Deering feature, used in connection with a built-up ice bank, makes this fast cooling possible. And cold temperatures are maintained automatically regardless of the weather.

Check the value built into McCormick-Deering Milk Coolers. The quality you see on the surface goes all the way through. The box is lined inside and out with heavy, galvanized, rust-resisting steel containing copper, and is insulated with the best quality cork, 3 inches thick. These coolers are equipped with an overload control switch, temperature control switch, and a scale trap installed in the refrigerant line. These are among the features that assure trouble-free operation. And remember this—when you buy a McCormick-Deering you get a **complete** cooler, all ready to operate.

Here is the 6-can size, electric-drive McCormick-Deering Milk Cooler. Other sizes are also available.



Ten McCormick-Deering Milkers milk this fine herd, saving time and labor as well as aiding in keeping down the bacteria count.

McCormick-Deering Dairy Equipment—Coolers, Milkers, and Cream Separators—is recognized in every dairy section as the investment that returns good dividends year after year. See the McCormick-Deering dealer for complete information on these lines.

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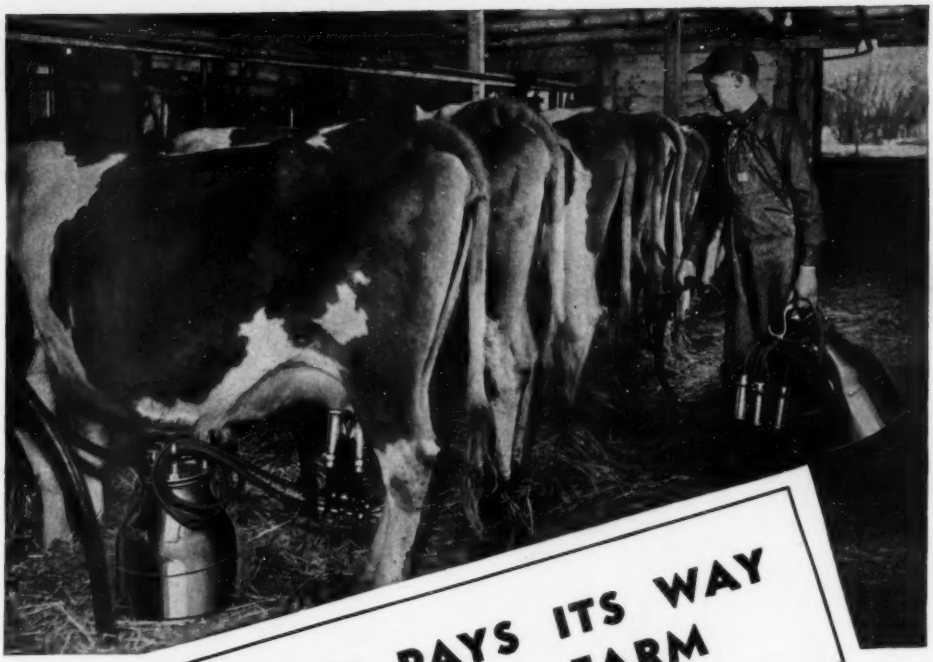


ELECTRICITY PAYS ITS WAY ON THE DAIRY FARM

The electric milker in operation on the Kerkhoff farm, being handled by the older son Quentin.

By T. E. HIENTON

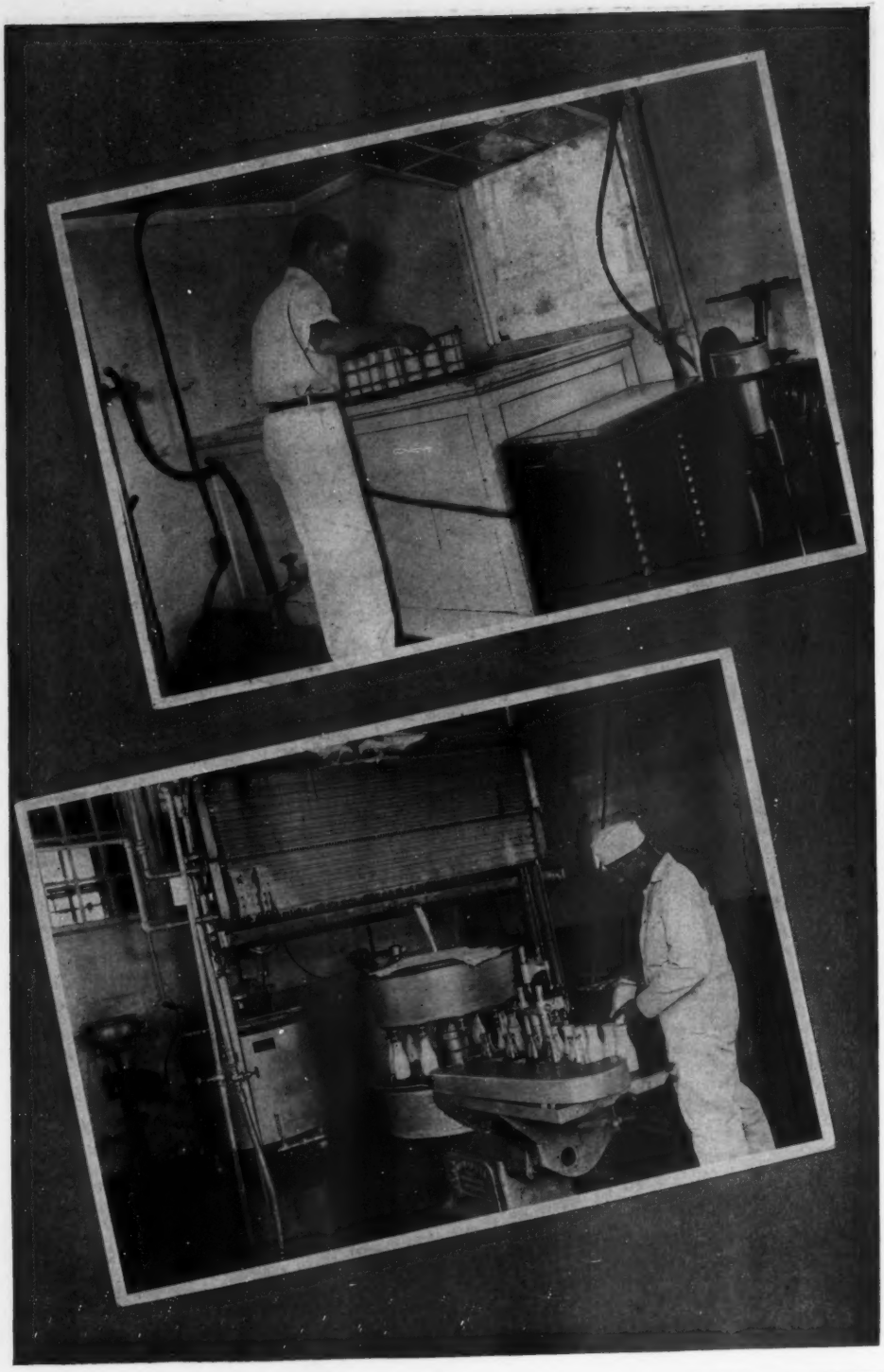
ELECTRICITY is made to return a profit through its use on the dairy farm of Joseph Kerkhoff of Tippecanoe County, Indiana. This profitable use of electric service did not occur accidently but resulted from careful study by the farm owner. Being a student as well as manager of his business and accustomed to knowing the costs of his farm operations, Mr. Kerkhoff carefully considered the use of electricity for power, lighting and heating purposes in relation to his farm business before electric service was installed. As a result of this study and careful analysis of costs, he has improved his lighting and power facilities by using electricity and at the same time his expense is from $4.50 to $6.50 per month less than before service was installed.

The Kerkhoff farm was located nearly a mile from the end of the nearest electric line when the owner became interested in securing electric service. Before accepting the power company proposal to construct the line to the farm without any charge but with a monthly minimum bill of $10 for a period of 60 months, he carefully investigated the uses of electrical equipment, and the amounts which each would consume. He also checked the expenditures for gasoline to light the residence and to drive the engine on the milking machine and water pump and found them to average $8.50 per month. Monthly bills for grinding feed for the dairy cows and calves and shelling corn for the hogs average a total of $6 in summer months and $8 in winter months.

Electricity Cheaper Than Fuel

During the year in which electric service has been available, the amount of the monthly electric bill has only twice exceeded the $10 minimum. The expenditure of $10 for electricity is from $4.50 to $6.50 per month less than was formerly spent for gasoline for fuel and for grinding and shelling. The milker is driven by a 1-horsepower motor and the water pump by a ¾-horsepower motor. These two motors have replaced the engine which was formerly employed to drive both machines. A 7.5-horsepower motor now drives a feed grinder and sheller to replace the custom outfit which formerly stopped at the farm. An immersion electric water heater heats the water for cleaning the milker units which was previously heated in a tank on the exhaust pipe of the engine.

Electric energy is used for lighting the house,



Upper Left: Electric milk cooler and separator in milk house of D. Conway Dairy Farm, Springfield, Wisconsin.

Lower Left: Electrically operated pasteurizer-separator and bottling equipment on Moore-house Dairy Farm, Lafayette, Ind.

Below: Hauling the milk from the barn to the milk house after milking on the Kerkhoff dairy farm.

regularly. The importance of the value of water to the dairy cow, as shown in the results of a test conducted by the Iowa Experiment Station, is deserving of consideration. A statement from the summary of the published report says: "Dairy cows, watered by means of water bowls, drank approximately 18 per cent more water and yielded 3.5 per cent more milk and 10.7 per cent more butterfat than cows that were watered twice per day at an outside tank."

Preparation of roughage on the dairy farm may require a further use of electric power, and profitably. Corn may be harvested when green, is cut and blown into the silo for silage or allowed to mature in the field, then is cut and shocked and run through a husker-shredder to husk the ears of grain and shred the stover. Cured hay may be stored whole being raised to the mow by a hay

barn, poultry house and other buildings with greater effectiveness than with the gasoline and kerosene lamps and lanterns in use prior to the building of the line. In the household, an electric motor replaced the gas engine which formerly drove the washer. A light socket radio occupies the location in which the battery-powered one stood. The iron is heated by electricity instead of gasoline. The cleaner is driven by an electric motor instead of hand power alone and a new I. E. S. stand lamp illuminates the living room. The cost of electricity for operating this household equipment is included in the monthly bill together with that for outdoor uses. Besides reducing the monthly cash outlay, electricity has lightened the work of both farm and household and increased the comfort of the home.

The value of using electricity for power to drive the milking machine, feed grinder, corn sheller and water pumps, is fairly well accepted by other dairymen besides Mr. Kerkhoff since cows must be milked, should be fed ground grain and watered

hoist, or it may be cut and blown into the mow with a hay chopper. Tests have been conducted by agricultural engineers of various state agricultural experiment stations to determine sizes of motors required to operate such machines. A general summary of such results indicates the advisability of using motors of certain sizes for the machines listed as follows: hay hoist, 3 or 5 horsepower; silage cutter, 3, 5 or 7.5 horsepower; husker-shredder, 5 or 7.5 horsepower; hay chopper, 5 or 7.5 horsepower. The use of an electric motor for driving any one of the machines may not be economical but where it is combined with operation of a feed grinder may prove more economical than other power units, where overhead charges are included in power costs.

Equipment Driven by Small Motors

Other machines of practical importance to the dairyman are driven by fractional horsepower motors. The cream separator is especially well suited

Above: Electrically heated dairy utensil sterilizer in use at Purdue University dairy farm.

Lower Left: The milker pump is driven by a 1 HP. electric motor on the Kerkhoff farm

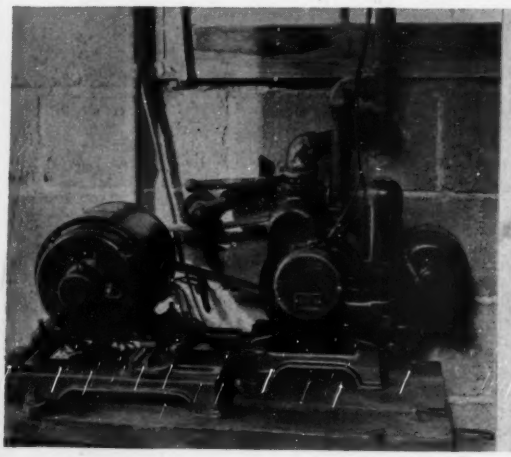
Lower Right: Grain is shelled for hogs and cattle on the Kerkhoff dairy farm with the same motor which drives the feed grinder

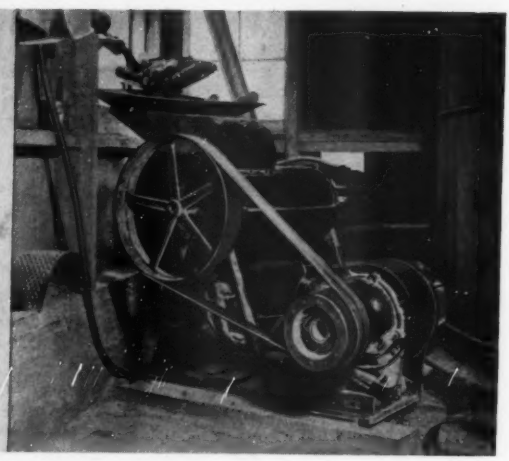
to electric drive because steadiness of operation is essential to satisfactory operation. The clipping machine has become almost indispensable in dairy stables where milk of good quality is produced. Hair on flanks and udders must be kept short and the electric clipper does the job at very low cost. Milk coolers, too, have an important place on many dairy farms to insure that milk is properly cooled and, where necessary, stored.

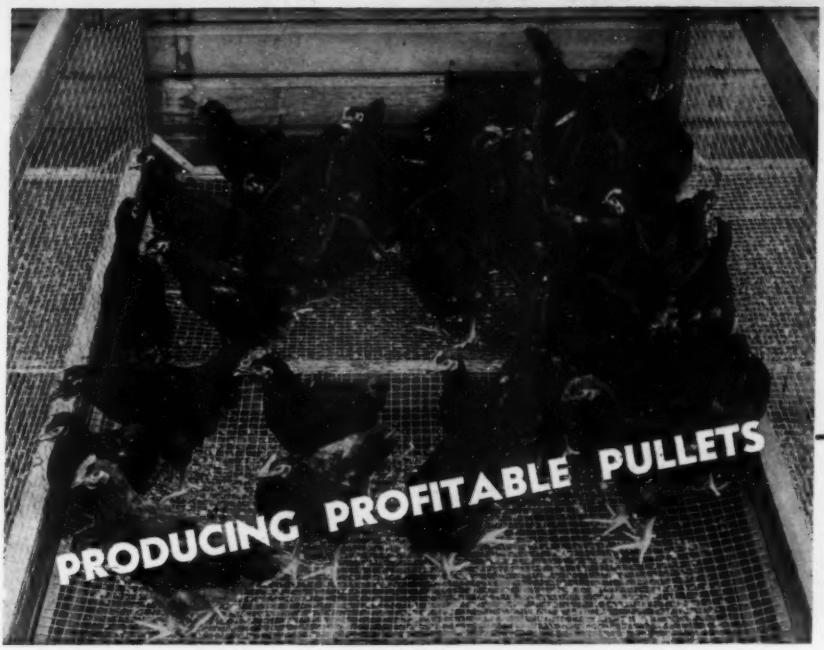
Heating Equipment Extensively Used

Electricity is being used for heating purposes other than water heating by dairymen throughout the country, especially utensil sterilization and milk pasteurization. Of the three uses, that of water heating is the most extensive at the present time because hot water is one of the very important tools in properly cleaning utensils. Many types are available ranging from the immersion heater which is merely dropped into a bucket of water to heat it to a full-automatic pressure-type heater. Electrically heated sterilizers have increased in numbers particularly in the eastern dairy section of the United States as efficient moderate priced sterilizers have been developed. Electric pasteurization, while not entirely new, is receiving greater attention from dairymen as boards of health, which prescribe regulations for the handling of milk, are looking with more favor upon the use of such equipment.

Small electric motors prove themselves reliable, inexpensive helpers in the milk house of the dairy farm where milk is sold at retail. The motor on the bottle washer saves considerable time and energy in the cleaning of bottles. The agitator in the steamheated pasteurizer is motor-driven to insure continuous action. Another small motor is employed in some milk houses to circulate brine from a brine tank through the tubes of the milk cooler. The electric fly trap and electric screen are proving very effective weapons in the dairyman's fight against flies in the stables and milk room. Equipment of this sort will kill many flies during a season but should be guarded so as to protect livestock as well as people.







PRODUCING PROFITABLE PULLETS

By ANDREW APPLEBY

THE County Agent looked up from his work as Sidney James walked in.

"What can I doo for you?" he asked cordially.

"I just came in to ask you how I can get a first class flock of pullets," replied Sidney. "I'm afraid I've kept my hens too long. They have certainly dropped lots of feathers but darn few eggs this winter. They are of such good breeding and cost me so much in the first place that I thought I couldn't afford to sell 'em to the butcher and buy more of the same strain. But here it is February and they've just begun to lay."

"That's the place to get your new flock," broke in the County Agent. "Why spend a lot of money on high priced pullets when you already have the best breeding stock in the neighborhood? Aren't you connected to one of those new rural electric lines just built out of Westport? Well, there's a good chance to put the new power to work for you. Electricity is a great help and convenience in poultry raising all the way through from candling the eggs in the incubator to scalding the oldest rooster."

The County Agent was right. If we decide that the egg comes before the hen, then the first poultry use of electricity is for incubation. Whether or not a farmer should hatch his own chicks depends on his conditions. If he is not particularly interested in the exact breeding of his flock and is reasonably near a good reliable commercial hatchery that produces strong, healthy chicks from well culled flocks, it may be just as well to buy baby chicks.

Sidney James' case was different. He had a fine flock of old hens of a strain he did not want to lose. His best course was to save eggs from his own flock and then either have them hatched for him at a custom hatchery or do his own hatching in an electric incubator at home. Since chicks from pullorum-free flocks may take the disease by being hatched in the same incubator with infected eggs, it is usually safer to hatch them at home.

For hatching the eggs from trap nested hens or special matings separately so that each chick can be identified, permanently marked, and recorded, the electric home incubator is ideal. It is easy to hatch the eggs from each individual hen in little wire baskets that will keep the chicks separated until they can be marked.

The advantages of hatching at home have been strengthened by applying electricity to small incubators. It has made them more reliable and much easier to tend than the old lamp-heated machines. Electric incubators produce no smoke, fumes, or odors; they use up none of the oxygen of the air; they reduce the danger of fire; their heating elements need no trimming, filling, cleaning, adjusting nor watching.

Several manufacturers supply good electric incubators small enough for home use and it is even practical to convert lamp-heated machines by putting in heating elements and sensitive electric thermostats.

In fact, Mr. Curtis Flamme of Twin Bluffs, Wisconsin produced his own incubators by mounting thermostats and heaters in a whole series of small home-made cabinets. The first picture here shows two of these successful home-made electric incubators with the lids raised to show the thermostats and the heating wire.

The cost of electricity for hatching depends on the capacity of the incubator, the room temperature and the energy rate. For incubators of 150 to 300 egg capacity, operating in an ordinary farm cellar, 24 Kwhr per 100 eggs is a fair estimate. Then if

Left: Brooding the chicks on a big shelf or table offers many advantages.

Below: A battery brooder is convenient for starting chicks.

Right: Mr. Flamme fastened heating wire and thermostats under the lids of his incubators.

the current costs 2½c. a kilowatt-hour and 60% of the eggs hatch, it will take exactly a penny's worth of heat for each chick.

It wouldn't seem that there could be a more economical or practical way for Sidney James to get his chicks hatched.

County Agent Offered Advice

And for raising them, the County Agent offered some excellent advice.

"I've always preached portable brooder-houses on clean ground out away from the other buildings," said he. "But now that you have electricity there are two other possibilities. The first is the battery brooder. You've seen them, a kind of baby-chick apartment house about five stories high. Leonard Hitzke out there west of Clintonville has one mounted on big easy rolling casters. He keeps it in the barn where it's reasonably warm even without the electric heat.

"That's the beauty of electric brooding,—with no fire to watch you can start a flock of baby chicks anywhere,—in an empty stall, on the hay-mow floor, or a corner of the garage. The battery is a compact and handy way to start chicks but most people take them out by the time they're three weeks old. Then the battery is ready for the next batch from your incubator.

"The other method that electricity makes more safe and practical is to raise the chicks in a permanent brooder house right near the other buildings. That saves a lot of steps and a lot of time in caring for them and the chances are you'll give them much better attention especially the first few days when they need it most."

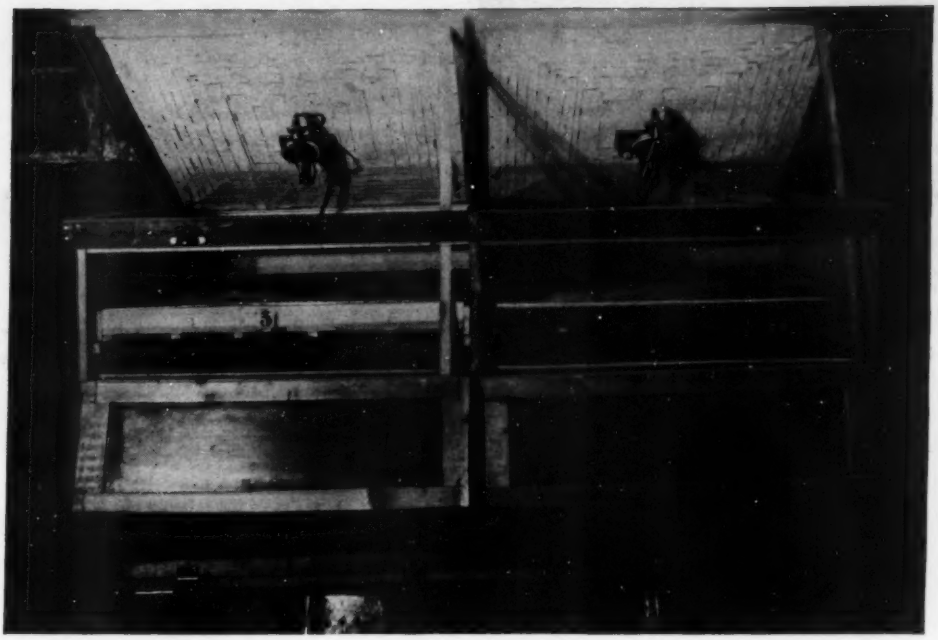
"How does electricity change the locations of the house?" asked Sidney.

"Most folks are a little afraid to have a brooder house with a fire in it right next to the other buildings. It's good insurance to have it off by itself. They don't often burn, but you remember Max Leopold, the Farm Bureau man at Arpin lost his colony house, chicks and all, from an oil brooder fire."

"I remember that, and I can see that putting an electric brooder right near the barn would make it lots cheaper to wire."

"If your building layout will let you put it right near the house, that's even better," explained the County Agent. "Then it will be very simple to put in an alarm that will ring in your bedroom if the temperature of the brooder gets either too hot or too cold."

"If I were you, I'd build a good stationary



brooder house about 12 feet square. Then inside along either of the side walls, I'd put a shelf about five or six feet wide and nearly eight feet long, leaving a space about two feet at each end. I'd set it about 30 inches from the floor and fix it so I could take it out if I wanted to. On that shelf I'd start each brood of chicks."

"I got this idea from Pat Walsh at Cazenovia and it's a dandy. It keeps the young chicks off the floor away from dampness and drafts. You do all your work with them at waist height without stooping. It is very easy to scrape droppings or litter off the shelf into a basket or wheel barrow. You never walk among the chicks so neither you nor anyone else is likely to bring in disease from your own flock or the neighbor's. And it saves or increases usable space in the brooder house."

"But how long can you keep chicks up on a shelf? asked Sidney. "Don't they get too crowded and don't they jump off?"

"Of course you need a little fence around the edge," was the answer. "But in about three weeks when they're well started, you put them down on the floor where there's lots more room. Then you can start another brood on the shelf. It may be the next hatch from your incubator or new chicks from a commercial hatchery. In either case there will be a difference of only three or four weeks in the ages of your pullets instead of six or seven weeks. Now you see what I meant by saving space. You save both time and space by finishing the first brood on the floor while starting the second on the shelf."

"That sounds like a pretty smart idea, but I suppose we have to get them out doors sometime."

"You can do that too without exposing them to infection. Ordinarily the ground where such a permanent brooder house would be located will have been overrun by the farm poultry for years. Then keep the chicks off the ground! Just provide them with a screen porch across the front of the brooder house and as wide as you care to make it, say ten feet. The floor of such a porch will require four widths of ¼ inch hardware cloth 30 inches wide, firmly fastened at the edges to frames made of 1x4 lumber. Be sure to use the ¼ inch mesh as smaller mesh does not clean well.

"Support the panels in a frame of 2 x 6's several inches off the ground. They need not be high enough to clean under, as they should be easily removable for thorough cleaning and even spading the ground. Fence in the porch with high wire netting or with low panels and a screen cover."

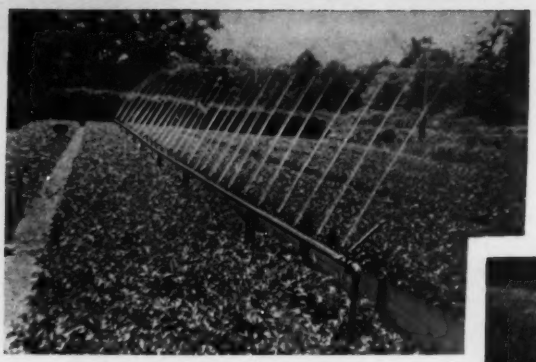
Transferring Pullets to Range

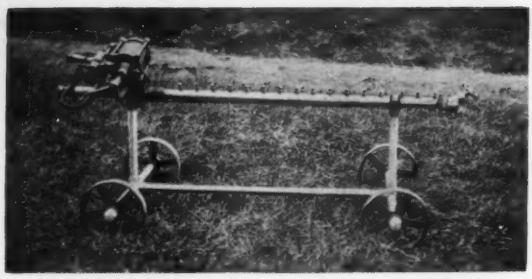
When the second brood is ready to come down from the shelf, some place must, of course, be provided for the older chicks. By that time it should be possible to separate the pullets from the cockerels. The cockerels should soon be ready for sale and can be quite closely confined until they are ready. Unless the weather is unfavorable it will be about time to put the pullets on clean range in small, simple range shelters.

"Can I run an electric brooder satisfactorily?" James finally asked.

"If you can read directions,—and follow them. I've said nothing about the details of operation or the care or feeding of the chicks. The manufacturer of the brooder knows best how his machine should be used. His directions will tell you; you'd better take his advice. Perhaps the most important point is to provide *plenty of heat AT FIRST*, and then gradually *lower the temperature.*

"This bulletin from the Agricultural college will give you rations and points on care. With its suggestions and your good common sense you can raise as fine a flock of pullets as you can possibly buy and for a much smaller outlay."





Above: A permanent overhead irrigation system on a Norfolk County, Virginia, truck farm.

Right: Mr. Gill's portable irrigation unit.

Below: The Gill Poultry farm in Roanoke County, Virginia.

AN AUTOMATIC WATER SUPPLY IS A MONEY SAVER

By CHAS. E. SEITZ

"I WOULD not think of living in the country without an automatic water supply. It is the first necessity," commented R. I. Gill when I visited his farm in Roanoke County, Virginia. Mr. Gill operates a five acre poultry farm, handling around 1000 chicks. His modern home is completely electrified, but he prizes his automatic water system above all the other equipment. A ¼-horsepower, 250 gallon per hour shallow well automatic pump, located in the basement of his home, supplies water under pressure for his residence and drinking fountains in his poultry houses. This water is pumped direct from a spring near the house, while a one horse power, 900 gallon per hour single stage centrifugal pump supplies water from a nearby stream through a three inch supply pipe line for irrigation purposes. Outlets are provided in the pipe line at intervals of 50 feet throughout the cultivated areas of his farm. The portable irrigation unit shown in the picture can be connected to these outlets with a 1½ inch hose. This portable unit costs approximately $35.00 and is equipped with an automatic oscillator for turning the nozzle line. By using this inexpensive equipment Mr. Gill can irrigate about 3 acres of garden and farm crop land, as well as the lawn around his house. Last summer was extremely dry in this section but, with the irrigation system, Mr. Gill had an abundance of fresh vegetables at all times, while other gardens in the vicinity were a failure. During one such season a small irrigation system will easily pay for itself.

Mr. Gill depends upon his electric pumps to insure a profit from his poultry business, as well

as for irrigation, fire protection, and a complete sanitary water supply in his residence. He says he would not attempt to operate a poultry farm without running water on tap at all times. An ample clean water supply is just as important as food to the hens for maximum egg production, since the content of an egg is more than 65 per cent water.

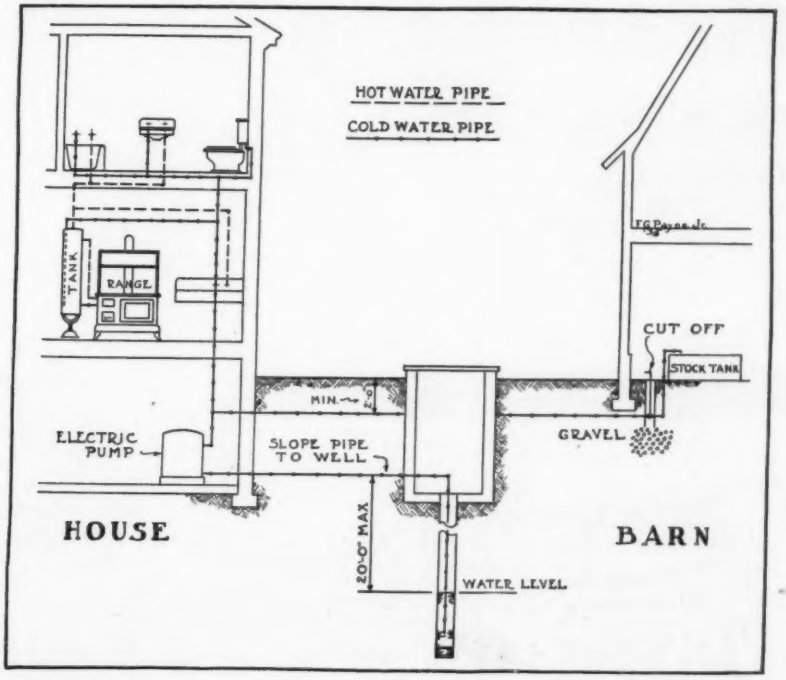
Thousands of farmers are beginning to realize that the twenty tons of water the average farm wife pumps and carries 200,000 steps each year is practically "lost labor," when it is possible for an automatic electric pump to do the same job for less than five dollars. With an automatic electric system, the water supply is then constantly under pressure and, if properly planned, is available for fighting fire when occasion demands. The fire protection provided by water under pressure is alone worth more than the cost of operation—it is really cheap fire insurance.

The provision of running water on the farm paves the way for modernizing the home for better living. This means that a bath room and convenient laundry facilities can then be enjoyed by the farm family, putting their home on a par with the best of city homes. The probability of diseases that originate in the water supply, such as typhoid fever, is greatly decreased by the good sanitation facilities provided by running water. Health records show that diseases spread by poor sanitation are rapidly decreasing where steps have been taken to improve the farm water supply. Health protection is a direct profit from an automatic water supply.

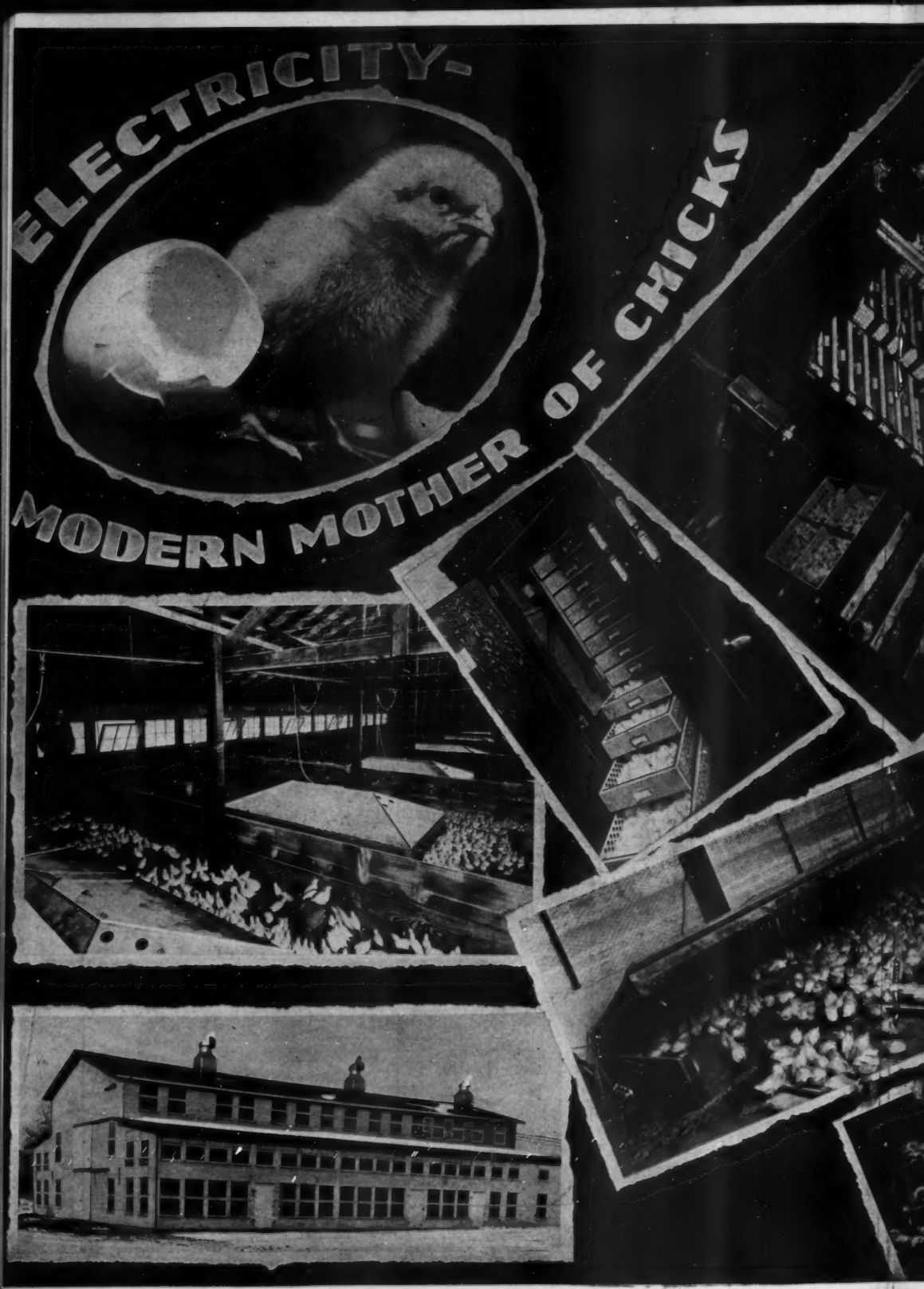
Practically every farmer soon finds ways to get real profits by the intelligent use of an automatic water supply. O. O. Reynolds who operates a 177 acre dairy, truck and general farm near Troutville, Virginia, says, "I consider my automatic water system worth more than any other electric appliance I have on my farm. My water system saved me more during the canning season than my total electric bill for all uses amounted to." A ¼ horse power automatic shallow well pump supplies water to the residence, barns and tomato canning plant on this farm. Regardless of the amount of electrical equipment used on a farm, most farmers I have visited place their electric water system at the top of the list when asked which appliance they value most highly. E. L. Sifford, Nace, Virginia, operates a 120 acre dairy farm and uses this electrical equipment: Water system, refrigerator, milk cooler, washing machine, milking machine, 5 HP motor for grinding, cutting ensilage and sawing wood, radio, iron and lighting. The water system is a ¼ HP shallow well automatic outfit and supplies water to the residence, dairy barn, poultry house and hog lot. Mr. Sifford said, "After I connected for electric service, I first installed an automatic water system and had rather use oil lamps again than to discontinue the use of my water pump. I consider the cost of operating my electric pump very reasonable compared with the time and labor saved."

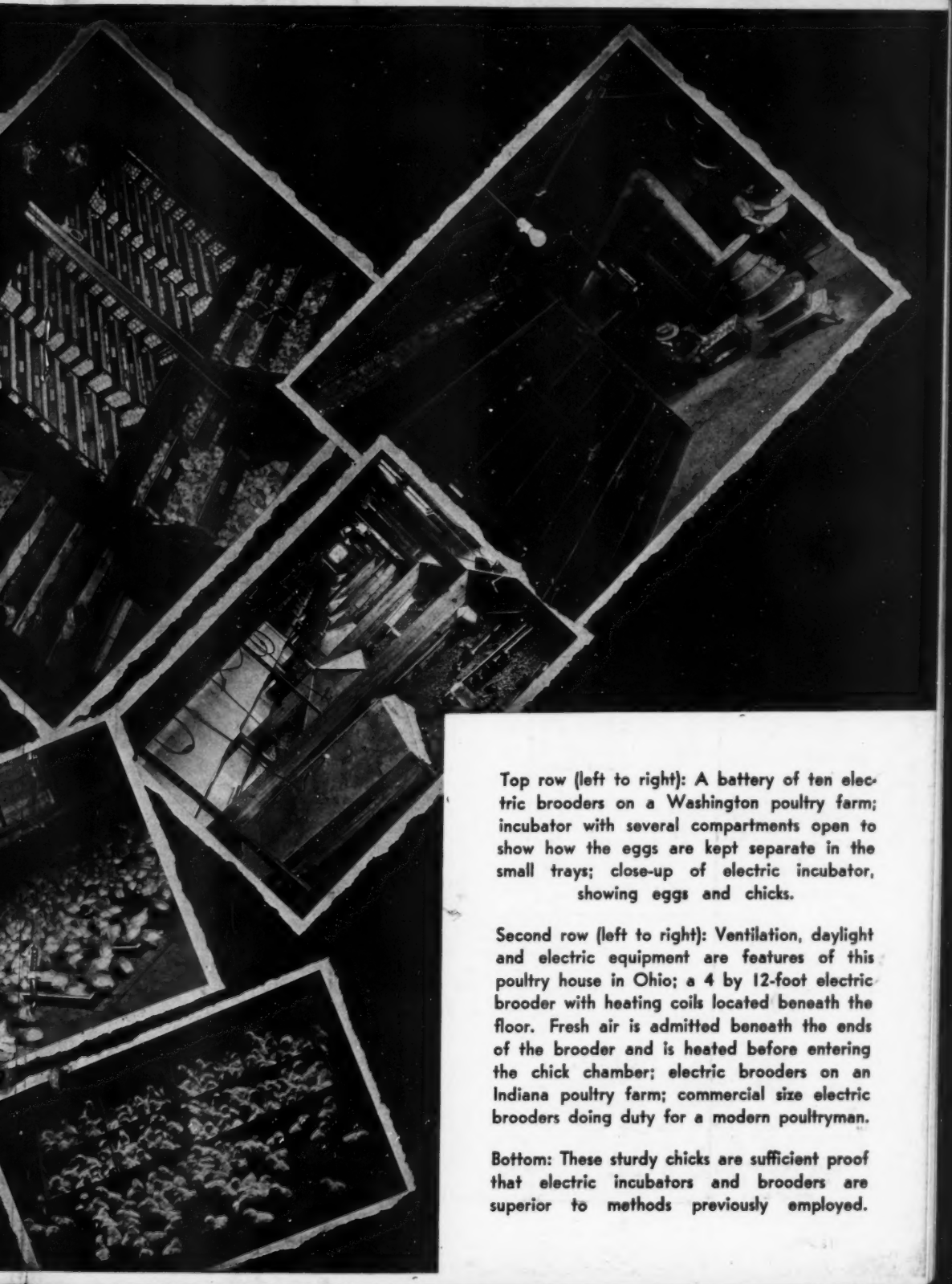
Dairy farmers find a supply of water under pressure indispensable in operating the dairy so that it will meet the sanitation standards called for by health department laws. Large quantities of water are necessary for washing equipment, building and cans, and it is necessary that this water supply be pure. The electric pressure pumping system protects the water supply from contamination between the source and points of usage, and guarantees a uniform pressure for all purposes.

Thousands of farmers replaced old engine driven pumps with automatic pressure systems when elec-



Typical shallow well pump installation.


ELECTRICITY-
MODERN MOTHER OF CHICKS



Top row (left to right): A battery of ten electric brooders on a Washington poultry farm; incubator with several compartments open to show how the eggs are kept separate in the small trays; close-up of electric incubator, showing eggs and chicks.

Second row (left to right): Ventilation, daylight and electric equipment are features of this poultry house in Ohio; a 4 by 12-foot electric brooder with heating coils located beneath the floor. Fresh air is admitted beneath the ends of the brooder and is heated before entering the chick chamber; electric brooders on an Indiana poultry farm; commercial size electric brooders doing duty for a modern poultryman.

Bottom: These sturdy chicks are sufficient proof that electric incubators and brooders are superior to methods previously employed.

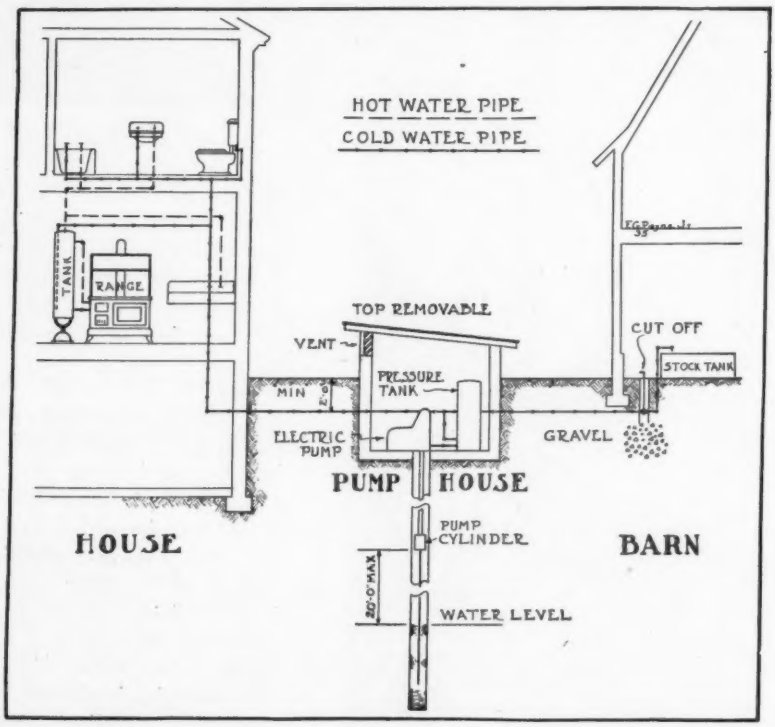
tricity was made available on their farms. Many of them have converted the old system into an automatic electric system by replacing the engine with an electric motor; using either a float or pressure switch for controlling the operation of the pump automatically. Mrs. Samuel R. Carter, whose farm is located near Ashland, Virginia, is a typical farmer who has converted her old gasoline operated pump into an automatic electric system. When asked how she would like to go back to the old way, Mrs. Carter quickly replied, "Don't mention gasoline motors to me. We had one before we bought our electric system ten years ago, and during the cold months it was just one worry after another to us. The motor was so hard to start, and when it did start we had to watch closely for fear it would fill up the over head storage tank and run it over. I couldn't stop the motor, so one of our men had to stay up at the house until we had pumped enough water. He would then cut off the pump and go back to the field. Now with our present electric system, the little motor runs until just enough water is in the tank and then automatically stops pumping."

The cost of installation and operation of an electric water system is not nearly as expensive as most people believe. The plan usually followed is to install the pump and begin by piping the water to the kitchen or points where it is the most used. The system can be extended later on, step by step, until the complete bath room and septic tank has been installed; eventually water may be piped to every point of usage on the farm.

There are two general types of pumps, based on the distance the water must be lifted. The shallow well type pump is used where the water in the well or cistern is never more than twenty-two feet down. This type pump usually requires a motor of 1/6 to 1/3 HP, and has a pumping capacity of from 200 to 500 gallons per hour. Approximately one kilo-watt-hour or unit of electricity is consumed in pumping 1100 gallons of water with the shallow well pump. For a farm that used 10,000 gallons of water per month, thirty kilo-watt-hours of electricity would be used. The price of shallow well pumps varies from $50 to $100, depending on capacity and quality.

Where the well is over 22 feet deep, a deep well type pump is required. This type of pump uses motors of from ½ to 5 HP, and has pumping capacities of from 175 to 2000 gallons per hour A one HP pump with a capacity of about 350 gallons per hour is the average size in use. The deep well pump consumes 1½ to 2½ kilo-watt-hours of electricity per 1000 gallons of water pumped, depending mostly on the depth of the well. This type pump must be located over the well and care must be taken in making the installation to see that the pump will not freeze in cold weather. Deep well pumps cost from $100 to $400; the average one about $125.

Care should be taken to see that all underground pipes are placed below the frost line to prevent freezing. In selecting a pump only a reliable make should be purchased from a dealer who keeps parts and supplies on hand at all times. It should be remembered that the best of equipment sometimes needs repairs. For this reason the availability of parts is important in deciding on the type of pump purchased. The depreciation on electric pumps is very low and, with proper lubrication and care, they give many years of trouble-free service.



Typical deep well pump installation.

Irrigation in Humid States is Good Crop Insurance

Each year more fruit and truck farmers in the humid eastern states are supplementing rainfall with irrigation, according to reports to the Bureau of Agricultural Engineering. They are finding that even with an average precipitation of 50 inches or more a year, a short period of drought at a critical time may ruin a crop, or so damage it that profits disappear, says Frederick E. Staebner, bureau engineer in charge of irrigation research in the eastern states. "Supplemental irrigation," he says, "is good insurance for fruit and truck crops."

Five humid states typical of those in which farmers are finding irrigation a help when rainfall is insufficient and the number of acres irrigated in each, according to a 1936 report of a committee from the American Society of Agricultural Engineers, are: Ohio, 10,100 acres; Michigan, 7,600 acres; New Jersey, 6,000 acres; Virginia, 3,600 acres, and Maryland, 1,150 acres—a total of 28,450 acres. Five years ago, according to a report of this same committee, there were only 2,750 acres in these states under supplemental irrigation, mostly in Michigan and Ohio.

Other humid states in which supplemental irrigation is increasing and the number of acres in 1936, according to the report, are Minnesota, 895; Illinois, 630; New York, 1,825 and of course, Florida, with nearly 63,000 irrigated acres.

That supplementary irrigation often is needed, especially in the midwestern humid states, is shown by a 10-year check on drought periods. Michigan in 10 years averaged annually 7 periods of 1-2 weeks without rain and one of 2-3 weeks. Ohio averaged annually 5 periods of 1-2 weeks without rain and one of 2-3 weeks. Average annual periods without rain for these 2 states and 5 others—Wisconsin, Minnesota, Iowa, Illinois and Indiana—were 6 of 1-2 weeks each and 1 of 2-3 weeks.

A check of Mr. Staebner's reports on the farms he has visited reveals that supplementary irrigation is profitable.

A farmer near Coloma, Michigan, who has irrigated for 8 years and is now extending his system, reports that he doubled his strawberry yield last year and improved the quality with two 2-inch irrigations. He "nearly doubled his raspberry yield and has finer canes for this year's crop." He "finds it profitable to irrigate alfalfa at the present price of $20 a ton."

A manager of orchards at Waterville, Ohio, reports that irrigation "doubled the quality" of pears.

A farmer near Farmingdale, New Jersey, finds that irrigated land produces about 35 percent more spinach than land unirrigated, and that irrigation speeds up one crop so that it often is possible to get a second crop from the same land that year.

A farmer near Malaga, New Jersey, finds that even with low prices he makes twice as much on irrigated crops as on crops unirrigated. He has used his irrigation equipment "a part of each year" for the several years he has had it.

A Michigan county agent finds that on the average supplemental irrigation will increase the yield of potatoes about 100 bushels an acre.

An apple grower near Newmarket, Va., finds irrigation increases his average yield several carloads, although the annual cost has not been more than "the selling price of a carload of apples in a good year."

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Let's Plan it First

By VERA B. MEACHAM

"IF you are an average woman," the slender young woman on the platform shook her head apologetically, "which heaven forbid, since no one really wants to be an average woman, you are spending some twenty-four to twenty-six hours a week in the kitchen getting meals."

Hester Long nudged me with her elbow. We were meeting, three of our home-management clubs, with the specialist from the university to talk about kitchens.

"Since you spend that considerable part of your life in your kitchen, there is every reason why you should make it as convenient and attractive as you can. I wish, when you go home this afternoon, you would stop and look at your own kitchen as though it belonged to somebody else. When you see it that way, not as the dear familiar place you have worked in for a couple of decades, a place where you can go in the dark and put your hand unhesitatingly on any thing you want, you are sometimes surprised and shocked."

She stopped a minute and we all gave a hasty thought to the kitchens at home. I felt myself growing slightly uncomfortable.

"Of course, kitchen planning can only be specific, and exact and detailed when it is done for some particular kitchen," Miss Sawyer continued. "For the plans must grow out of the work to be done, the equipment to be used, and the house it is built in. But there are certain general needs that any housewife can consider."

At that she asked her assistant to throw on the the screen at the back of the platform a copy of the following HIGH POINTS IN KITCHEN PLANNING from FARMERS' BULLETIN No. 1513, U. S. D. A. (Convenient Kitchens by Greta Gray.)

First, last, and all the time, in planning and equipping a kitchen, think about the work to be done in it.

If building or remodeling a kitchen, make it oblong and with no more floor space than actually needed. A kitchen is a workroom. Spaciousness is paid for in miles of extra steps.

Study the relation of the kitchen to the rest of the house. Make a direct connection from kitchen to dining room in the common wall between them. See to it also that there is easy access to front and back doors, to the telephone, to the stairs, to the cellar, and to the second floor.

Arrange for adequate ventilation in all weathers and for good lighting at all work centers at night as well as during the day.

Choose finishes for floor, walls, and woodwork that are durable, suitable in color, and can be kept clean easily.

Select furnishings that fit the needs, suit the wall and floor space, and they will pay for themselves in usefulness. Weigh the pros and cons of built-in and moveable furnishings for

Above: No. 1. A very obsolete kitchen.

Right: No. 2. The same kitchen after modernization plans had been carcarried out.

your own kitchen and compare prices carefully.

Decide on the most comfortable height of working surfaces.

Group all equipment, large and small, into compact work centers for preparation of raw food, cooking, serving, clearing away and dishwashing, and any other activities done regularly and often in the kitchen.

Arrange these groups from left to right following the order in which the various jobs are done.

The kitchen is above all else a place to prepare and serve food; limit it to this use if possible, and arrange for laundering and such work to be done in another place.

"It seems to me," Miss Sawyer went on, "you should collect bulletins as the first step in remodeling. NEW KITCHENS by Mrs. Danner and Professor Driftmeir of the University of Georgia will help you. You know the University of Georgia is at Athens. Several magazines offer such bulletins. Be on the look out for any articles that will give you suggestions.

"There are certain things that you have to figure out to start with, and Miss Gray helps you get them in mind by her very first paragraph when she says,

" 'A convenient kitchen is one in which the necessary work can be done with the least possible effort. To plan such a kitchen requires at least two things. First, there must be a clear idea of all the routine jobs to be done in the kitchen in the order that they are most likely to come. Preparing raw food, cooking, serving, clearing away and dishwashing are the jobs that follow each other most often in the majority of kitchens. Second after the plan of work is clearly in mind, comes the choosing and placing of the needed equipment."

Hester sighed deeply.

"If she could see my kitchen," she whispered mournfully, "she'd realize there isn't anything to be done about it, but burn it down and start over."

"Oh, I don't know," I retorted. "I'd only recomend that as a last resort. There's probably . . ."

"Shush," hissed Hester sibillantly. "Shush."

"Just the other day," Miss Sawyer was saying. "I read an account by Josephine Knox of the Kitchen Modernization Bureau of the Edison Electric Institute, of a kitchen she helped make over up in Connecticut.

"Miss Knox said," reading from a paper in her hand, 'An interesting test was recently made to discover how far the woman in a home travels in the preparation of the usual evening meal.

Mileage Test in Obsolete Kitchen

" 'This test took place in a home in which the kitchen was not modern, yet was not below the average of millions of present day kitchens.

" 'There were five mouths to feed in this family, and the meal served was a substantial dinner but without any frills—just the sort of dinner you might find any evening in thousands and thousands of homes of people of moderate income.

" 'The test showed that the housewife walked a mile and a half in the preparation of that meal. Not only were there the unavoidable large number of trips between dining room and kitchen, but her footsteps in and across the kitchen were a maze of criss-cross tracks.' "

This scurrying a mile and a half with your hands full of pots and pans, of paring knives and platters just to get dinner seemed a bit too steep. We'd think twice before we started off to walk a mile

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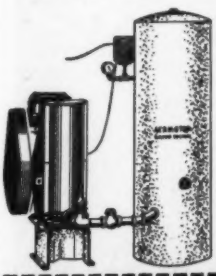

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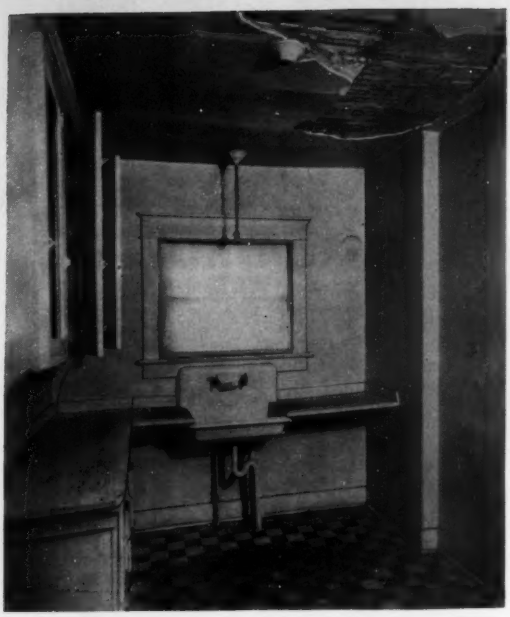


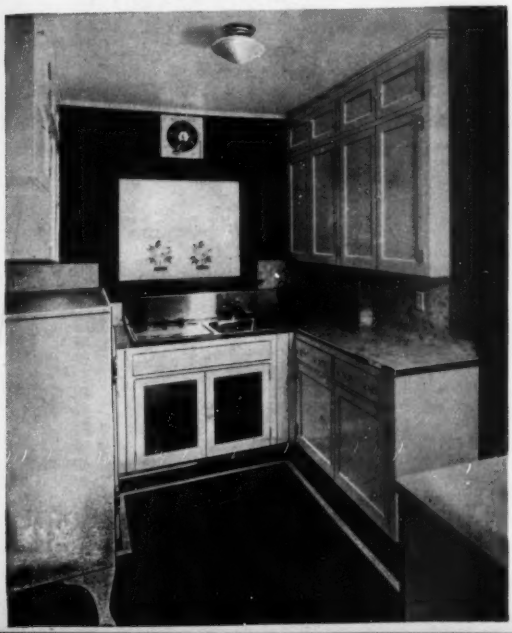
Above: No. 3. A kitchen in Kansas City, Mo., before being modernized.

Below: No. 4. The same kitchen made over for efficiency and beauty.

and half to a neighbor's. Can it be possible that many of us are walking that far day after day on trips for which we can't use the family car?

Miss Knox says so. And she is the one who put the pedometer on the ankle of the Connecticut housewife.

Apparantly that discovery started an immediate and complete remodeling of the kitchen.



"This included," says Miss Knox, "not only complete electrical equipment, but also the careful arrangement of range, refrigerator, sink, storage cabinets and work counters to reduce wasted effort and footsteps to a minimum."

"Meal mileage was reduced from 1½ miles to approximately ¾ miles, or a saving of just about half the footsteps."

Amazing! You say?

"Actually it is not so amazing when one really begins to think about it," admits Miss Knox. "Suppose, for example, your range is not near the dining room door but clear across the kitchen. Every trip from range to dining room may then represent from 10 to 12 feet of unnecessary travel, four or five wasted footsteps, a block of needless travel a meal or 121 miles a year. If your range, refrigerator and sink are not properly placed in relation to each other, if you have to walk across the kitchen to get a pan or knife which ought to be kept near the sink, you are adding more useless miles to your yearly marathon."

After reading this account Miss Sawyer threw on the screen the picture of the kitchen I have shown you here as No. 1.

"Looks just like mine," I heard a woman behind me whisper. "'Cept the cabinet's in the wrong place."

"Then you know what's wrong with it, don't you?" Miss Sawyer smiled. "You know how far you have to walk from table to stove, and stove to cabinet. You know how many trips you make up and down the cellar steps with food you are trying to keep cold. You know how much you need convenient storage space for dishes and silver, and pans and kettles, to say nothing of food."

Her assistant pulled the slide out and pushed in another.

"Here is that same kitchen after a good kitchen planner, a good carpenter and an energetic salesman finished with it. It would have been more convenient probably if we could have built it U-shaped with the sink in the middle of the end, but this kitchen couldn't be treated that way because there is a door in each end, and whether we like it or not, the kitchen has to serve as a passage way. But you can see at a glance how much less walking there will be in getting a meal, how much more convenient it is, how much less work there will be in taking care of it, and how proud the owner is of its new beauty.

"Next, please."

The third slide was the sorry picture of this forlorn kitchen with its ceiling half off. No. 4 shows it made over for efficiency and beauty.

All Eager to Present Own Plans

After the lights came on, we were all itching to get hold of a pencil and paper, to hunt up kitchen plans in old magazines we had saved for that very purpose, and we gathered eagerly about Miss Sawyer, each with our own kitchen on our lips, as it were, a dozen questions tumbling out at her all at once.

"Go home and plan, first," she said, holding her hands over her ears. "Go home and study your own needs, write to the university, to your favorite magazines, to your power company, get your kitchens all down on paper, and when I come again, you can conduct the meeting. We'll all discuss each others plans. It costs a lot less to draw a plan than to tear out boards, change wiring, and rip up floors. Let's plan it first!"

ELECTRICAL HOUSEKEEPING

Conducted by GAIL MEREDITH

IN THE BEST BEDSIDE MANNER

THERE are all manner of ways to light your bedroom so it will be cheery and pleasant. It takes no great amount of light just for dressing and undressing, from 2-5 foot candles, the lighting experts say is enough. In most bedrooms a ceiling fixture with a 100 or 150 watt bulb will give you that.

This ceiling light must be well shaded so it cannot glare into the eyes of anyone lying in bed. This can be done very nicely with an enclosing glass bowl decorated, perhaps, to harmonize with the colors of the room. One of the new colored glass shades that send much of the light up toward the ceiling to be reflected softly about the room, a hanging shade or a drum of tinted parchment that fits tight against the ceiling, any of these make attractive fixtures for bedroom lights.

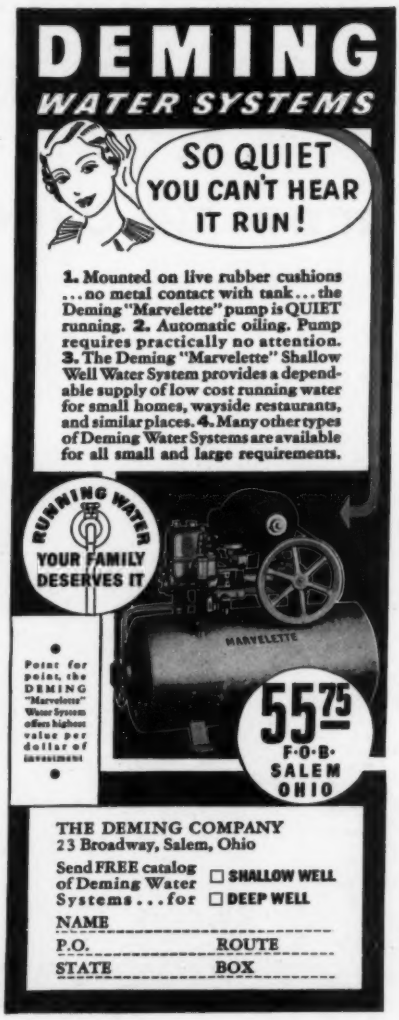
If your folks like to read in bed, a lamp on a bedside table, a pin-it-up on the wall by the bed, or a lamp that clamps on to the bedstead itself will give them proper light on their books or magazines. Remember to hang a bed lamp high enough so the reader will not hit his head against it as he sits in bed, and so that it will shed a good light on his book.

Good ceiling and bedside lights.

In the girls' rooms, as well as your own, the manner of lighting dressing table and bureau mirrors is important. Tall lamps standing on the table, or lamps hung at the side, give excellent light. These lamps should have 60 watt bulbs and light shades, preferably ivory, cream or beige. If you will remember that their light should shine on your face and not on the mirror itself and choose lamps or hang the lamps so they are about on a level with your face, you will get the most effective lighting.

In the boy's room where a dainty boudoir lamp would be poo-hooed in high dudgeon, there is still need for a good light on the irascible young man when he combs his hair or ties his tie. Unobtrusive lights at the side of the mirror or a single light hung in front of it so the light will fall on his face will give better satisfaction.

Any bedroom closet is the better for a good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light. A 60-watt lamp hung from the ceiling or mounted over the door will save a good deal of blind fumbling about in the dark. You can turn such a light on with a pull cord, or by an automatic door switch that lights it up when you open, and turns it off when you shut the closet door.

Of course, if the children study in any of the bedrooms, their work table should be lighted with a good study lamp that will shed at least 25 foot candles on their work. 150 watts to 300 watts in this lamp will give from 15 to 30 foot candles three feet from the bowl of the lamp. If their work can be carried on within two feet of the bowl, a 100-watt bulb will give them from 40-45 foot candles, the lighting specialist says. These wattages are found under lamps that meet the specifications of the Illuminating Engineering Society, a lamp that has an enclosing bowl of glass, and a shade with a white or near white lining.

If you mend or darn in one of these bedroooms, you cannot depend on the lamp on the ceiling to give you enough light. You, too, will need a good portable lamp that will stand at your elbow and shed a good light on the work in your lap.

Light in the bedrooms, as I said before, should make them pleasant rooms to go to, and besides that, it must keep right on, even there, with the job of making it easy to see.

• • •

IT'S IN THE OVEN

IT is a very comfortable feeling to shut a whole meal up in the oven at once, to twist a knob to the right temperature, to turn a switch for the heat, and to look at the clock and say,

"Two hours from now dinner will be ready, and I can quit till it's time to set the table."

To be sure you've had to do quite a little work

Setting the clock which governs the oven controls.

For February

DEAR READERS: I enjoyed all of your letters very much. They were so cordial and so friendly that I felt as though you had dropped in for a call.

The five dollar check goes this month to Mrs. Winnifred Reynolds, Westfield, New York.

Try again this month, will you? There will be a check for you if we publish your letter; it needn't be long, 300 to 500 words, on "The Plan of My Kitchen." Draw a diagram or paint a picture if you like to send with your description of the layout, the arrangement of your kitchen. It will be the letter that counts, though. Send it, please, by the first of March, and address it to Gail Meredith, 1026 Seminole Highway, Madison, Wis.

Here is Mrs. Reynold's letter:

It Beats All

"With all due apology to my washing machine I have decided to exploit the maneuvers of my electric mixer. I suppose it would be possible to have the laundry damp dried for a small sum each week; but how else could I get those countless small tasks done each day without this versatile labor-saver?

"Each morning it makes a creamy batter for pancakes or waffles or extracts fruit juice. Probably dishes are never done here without this being included. I might add that it practically washes itself or whisks up a brisk lather for the other dishes. It is very useful when making soap jelly or suds for cleaning woodwork, upholstry or shampooing rugs.

"All thru the day whether there is cream to whip, eggs to beat, mayonnaise to make, a cake to bake or frost or vegetables to mash it performs well. It can be used in the first stages of bread making. Having this very smooth is one of the secrets of fine grained bread. In baking a cake, more uniform results are obtained because it is always mixed the same. It is especially useful in making sunshine or angel food cakes. It is fine to make custards or egg nog or other beverages. My husband even threatened to use it to mix paint one day.

"Other accessories I hope to own some day include: food chopper, meat grinder, slicer, shredder, can opener, the buffer knife sharpener. Then there's the ice cube breaker. I have heard of a mixer with a flour sifter and one with an attachment to use with an ice cream freezer. I doubt it there is another piece of electrical equipment as varied in its use."

MRS. WINNIFRED REYNOLDS,
Westfield, N. Y.

but it was, I'll venture, less work than doing half a dozen things at once between eleven-fifteen and twelve.

To be sure you can't just thrust a few dishes of anything whatever into your oven and expect it to come out a meal. For a good oven meal you have to plan a little, and work a little, and wait a little.

For instance you have to select foods that will cook best at the same temperature, and if you really want to be free of the kitchen and at work somewhere else in the house, you have to select foods that will cook in about the same length of time. It is often possible to cook most of the dinner

Oven prepared carrots.

without supervison, and then to bob out into the kitchen and tuck in a tin of bran muffins, a tray of Yorkshire pudding, or perhaps a dessert, some half hour or so before the dinner is to be done.

Miss Margaret Larsen, the Home Service Specialist for one of the manufacturers of ranges, suggests that these combinations make good oven dinners.

Ham loaf — Scalloped potatoes
Stuffed peppers — Prune Salad
Apple Crisp
Time 2½ hours — Temperature 350 degrees

Roast Shoulder of Pork — Spanish onions
Browned potatoes — Carrots
Rice Pudding
350 degrees — 2½ hours

Spanish steak — Steamed potatoes
Carrot strips — Baked peas
Fruit bran bread
Time 4 hours — Temperature 300 degrees

In this dinner neither the vegetables nor the dessert cooks the entire time. The potatoes take about an hour and a quarter, the carrots slightly less, depending on how fine they are sliced. The fruit bread, if you bake it with the dinner, will cook in about an hour, but the temperature should be raised to 350 for that time.

Self-Evident

An English tourist was on his first visit to Niagara Falls, and a guide was trying to impress him with their magnitude.

"Grand!" suggested the guide, but the visitor did not seem impressed.

"Millions of gallons a minute," explained the guide.

"How many in a day?" asked the tourist.

"Oh billions and billions," answered the guide.

The visitor looked across and down and up as if gauging the flow.

"Runs all night, too, I suppose?" he remarked nonchalantly.

Let It Pay For Itself While You Use It

FROM 25 to 50 per cent of all the cream separators in use today are so badly worn or inefficient in operation that they are wasting enough butterfat to pay for a new cream-saving De Laval Separator within a year's time.

In skimming efficiency, ease of running and durability, nothing can compare with a De Laval Separator.

There are 16 styles and sizes of De Laval Separators, ranging in price from $30.00 up. Sold on payments as small as $1.00 a week, so that they will pay for themselves out of cream now being wasted.

See your De Laval Dealer for a free trial.

De Laval Milkers are rapidly increasing in use and popularity the world over, and like De Laval Separators are considered the world's best. They milk better, faster, cleaner and cheaper than any other method.

Outfits for milking from one to 1,000 or more cows, priced from $145.00 up. See your De Laval Dealer.

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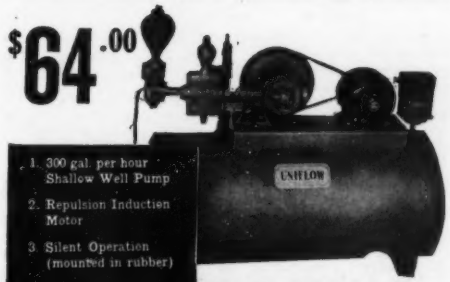
NEW YORK 165 Broadway — CHICAGO 427 Randolph St. — SAN FRANCISCO 61 Beale St.



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6. Pressure Gauge
7. Automatic Pressure Switch
8. Automatic Overload Relay
9. Relief Valve
10. Completely assembled in one crate

THE GEM "30"

IT'S SO QUIET that all you can hear is the swish of the water when the pump is working. The Gem "30" is the finest Shallow Well System that we make and we guarantee that you will be delighted with its good performance. . . . $64.00 makes the Gem "30" a real value.

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Shallow Well Systems: $46.00 and up.

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Cellar Drainers
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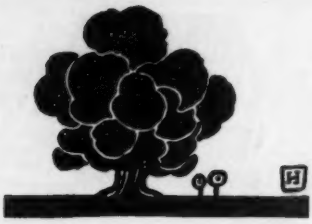


Under The CHESTNUT TREE

Return Match Probable

"Well, Sambo," said the judge, "so you and your wife have been fighting again? Liquor, I suppose."
"No, suh," said Sambo, "she licked me this time."

Bill's Bill

"That's a mighty fine-looking billfold your wife gave you for Christmas. Was there anything in it?"
"Yes, the bill for the billfold."

"When you didn't have your fare, did the conductor make you get off and walk?"
"Only get off. He didn't care whether I walked or sat down."

Luck of the Irish

"Dr. Robert O'Leary said he had five dollars in his pocket when he went to the Church Bazaar Saturday night, but managed to escape about ten o'clock, he said laughingly, with two quarters, a thin dame, and four pennies."—From the Cauca (Calif.) Standard Bearer.

Preparedness

He had only recently joined the ranks of politicians, and he was anxious that his first speech to his prospective constituents should be a great success.
He spoke for a long time, warning his hearers of the dangers of war and the importance of keeping a large army. Wishing to finish with some quotation, he thought of the proverb about locking the stable door. But he wanted to be a bit more original.
Suddenly he had a brain-wave.
"Ladies and gentlemen," he cried, "don't, I beg of you—don't wait till your house catches fire before sending for the fire brigade."

"Did you give this man the third degree?" asked the police officer.
"Yes. We browbeat and badgered him with every question we could think of."
"What did he say?"
"He dozed off and murmured now and then: "Yes, my dear, you are perfectly right!"

Legal Evidence

A man was charged with shooting a number of pigeons, the property of a farmer. Counsel for the defense tried to frighten the farmer.
"Now," he remarked, "are you prepared to swear that this man shot your pigeons?"
"I didn't say he did shoot 'em," was the reply. "I said I suspected him of doing it."
"Ah! Now we're coming to it. What made you suspect this man?"
"Well, firstly, I caught him on my land wi' a gun. Secondly, I heard a gun go off and saw some pigeons fall. Thirdly, I found four o' my pigeons in his pocket—and I don't think them birds flew there and committed suicide."

The new assistant at the seed shop was having a harassing time. Someone had ordered a packet of potato seed, and he had spent two hours looking for them, without success. At last he asked the boss.
"What!" roared the boss. "Potatoes are not grown from seed. You've been having your leg pulled."
Ten minutes later a customer entered the shop and asked for some bird seed. To his surprise the assistant waggled a finger at him.
"Go on," he said, "I can't be fooled twice. Birds are hatched out of eggs, not seed."—Tit-Bits.

Parted Forever

"There goes Bill Jones. Called on me yesterday. First time I'd seen him for 20 years."
"Does he still part his hair in the middle?"
"Oh yes; but the part is about five inches wide."

Sunday Observance

It was Sunday afternoon, and little Thomas opened the door to reveal the minister.
"Is your father at home?" inquired the visitor.
"No, he's not home," said little Thomas. "He's just gone over to the golf club.' Then Thomas, noticing the look of commiseration and long-suffering piety on the minister's face, hastened to add, "Oh, it's all right—he's not playing golf. He wouldn't think of that on a Sunday. He's just gone over for a few drinks and a game of poker."

But She Didn't Like It

He: "You're always asking me to tell you a lodge secret. Well, I could tell you one, but you wouldn't like it."
She: "Oh, George! I will, too! Tell me!"
He: "O.K. Here's the secret. I just paid my lodge dues, so you won't get a Christmas present this year."

Father came downstairs carrying his jacket over his arm. He looked hard at his wife and then at his son.
"That boy has taken money from my pocket," he stormed.
"Henry," she ejaculated, "how can you say that? Why, it might have been me." Father shook his head.
"No, my dear," he replied, "it wasn't you. There was some left."

Very Well

Once I heard a mother utter:
"Daughter, Go and shut the shutter."
"Shutter's shut," the daughter uttered;
"I can't shut it any shutter."

Wanted to Be Sure

Rastus was dead. A wonderful funeral was in progress. The preacher talked at great length of the good traits of the deceased brother, what a good, honest man he was; what a good provider for his family; what a loving husband and father—.
The widow grew restless.
"Johnnie," she whispered, "Go up dare and look in dat coffin and see if dat's yore pa."

Order

The doctor was interviewing the last patient in his office when a woman rushed in crying: Doctor! Doctor! Come quickly. My husband has swallowed a mouse!"
"Get back to him," said the doctor, "and try waving a piece of cheese about in front of his mouth. I'll follow."
Five minutes later the doctor reached the house. A man was lying on a settee with his mouth wide open, while a hysterical woman was waving a piece of fish close to his mouth.
"You foolish woman," he cried. "I told you cheese."
"I know that," she shrilled, "but I've got to get the cat out first!"

Statistics

A certain noted temperance worker was strolling through one of Washington's parks and noted a man stretched out on the grass, his hair tousled and face flushed. Concluding that the man was under the influence of alcohol, he paused to chide him gently:
"My friend, did you ever stop to think that if the price of a drink of liquor had been put out at compound interest at the time of the Queen of Sheba's visit to Solomon, it would now amount to $7,921,763.11?"
"No," answered the prone one, "but I'm somewhat of a statistician myself and I'm telling you that if you aren't 121 feet from here in 9 seconds, I'm going to hit you on the nose 23 times and cause you to see 13,791 stars. I have just had 5 teeth pulled at $1.75 a pull and I'm in no humor for figuring."

ON THE AIR

Conducted by JEROME J. HENRY

Cross-Examining Mr. Lawes

FOLLOWERS of 20,000 Years in Sing Sing, the radio series which dramatizes actual prison episodes, are showing a growing curiosity in the famous prison.

Some of the questions they ask most frequently of Warden Lawes follow with his answers:

Q: What is the average number of men confined in Sing Sing?

A: 2500.

Q: When did the name Sing Sing first come into use?

A: About 1850.

Q: Who was the only child born within the walls of Sing Sing?

A: Warden Lawes' youngest daughter, Joan.

Q: How many men have passed through the gates in the last 111 years?

A: 92,500.

Q: What proportion of the inhabitants of the United States has a prison record?

A: One in every 42.

Q: Has there ever been an escape from the death house?

A: From the present death house there has been no escape. Three men escaped from the old death house. Two of them were killed; the other recaptured.

Q: How can a letter be read without taking it out of the envelope?

A: The letter is photographed inside the envelope by ultra-violet ray.

• • •

Dog Knows His Master's Voice

EDWARD McHUGH, the Gospel Singer, believes that of all his thousands of radio followers, his most devoted listener is Rex, his 3-year-old Belgian Shepherd dog.

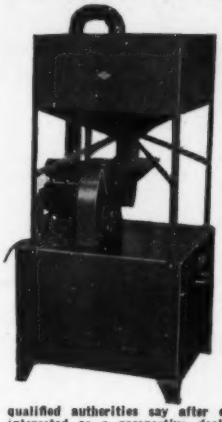
When the Gospel Singer is on the air, according to his wife, Rex curls up in front of the radio until the program is over. If Mrs. McHugh becomes so preoccupied with the housework and forgets to turn on the radio at 11:45 a.m., when the Gospel Singer comes on the air, Rex will whine. If the

Farm College Experts Endorse VIKING HAMMER Mill that allows you to

GRIND YOUR OWN FEED

At Low Cost - As You Want It - When You Want It

Grinds up to 700 pounds of feed per hour with about one-half kilowatt per hour. Has automatic, non-fouling feed, so keeps right on grinding while you do other work. Starting switch and device for overload protection ... and, best of all, an extended shaft that can be made to do scores of farm jobs. Comes complete with ½-horsepower motor, 4 screens of different mesh and attachment for grinding limited quantities of hay, ear corn, etc.



Write for complete information and what qualified authorities say after exhaustive tests. State if interested as a prospective dealer.

Viking Manufacturing Co.
Jackson, Michigan, U. S. A.

For SPEED SAVINGS SATISFACTION

Chromalox Super-Speed

ELECTRIC RANGE TOP BURNERS

Selected on their merits by the makers of many fine modern electric ranges. Also available for replacement of single units in any range. Ask your dealer, power company, or write us.
EDWIN L. WIEGAND CO., 7580 Thomas Blvd., Pittsburgh, Pa.

ASK YOUR POWER COMPANY for a DEMONSTRATION

WARNER ELECTRIC BROODER

Pays for Itself in One Brooding By the Chicks It Saves

No. 350—48" x 50" Wattage 800—$24.50.
No. 500—48" x 72". Wattage 1000—$34.50.

Manufactured by Warner Brooder & Appliance Corp.
Customers say: The moisture problem is solved. The ventilation (without fans) is perfect. The reflector, chromalox units and triple insulation make it the best electric brooder they have ever had. Two sizes.

Originated six years ago, with a splendid record of satisfactory, successful operation every season since. Constantly improving. Approved by practical poultrymen and rural electrical engineers.

Safe and Economical

Plug in the socket—regulate—and forget it until the brood is complete. No fires. Fully guaranteed. Operates 60 days in cold weather for as little as $4.40, yet requires no attention and no auxiliary heat in zero weather.

Send Orders and Inquiries to Toledo Sales Division

THE NATIONAL IDEAL CO. - - TOLEDO, OHIO

FAMOUS CHROME STEEL REFLECTOR
Chromalox Heat Units
Automatic Switch
Guaranteed for Life of Brooder
Write for Free Folder Giving Dealer's Name.

whine goes unnoticed the dog tugs on Mrs. McHugh's apron strings and leads her to the loudspeaker.

Rex is also a discriminating listener. He can distinguish his master's voice from any other. When phonograph records are played the dog is just a disinterested listener, except when a McHugh record is put on. Then he perks up his ears and wags his tail.

Happy-go-lucky hillbillies Judy Canova, Zeke, and Annie, shown pushing up on a new repetoire for Texas folks.

Frances Carlon in Dramatic Series

FRANCES CARLON has been heard frequently in the NBC serial, "Today's Children." Her role is that of the "other Eileen Moran," who is a visitor from England. Frances was in the movies until she began radio work in Chicago recently.

• • •

Doesn't Envy the Movie Kids

BILLY IDELSON feels sorry for the kids in vaudeville and the movies. "In radio we can lead our own lives," says the youngster who is already a radio veteran, having been in the business for more than five years. Listeners follow him with Vic and Sade over NBC stations.

His experience gives him a right to talk as an old timer (but, of course, without sticking his thumbs into his suspenders or tilting a cigar from the corner of his mouth.)

Vaudeville kids have to move around all the time, says Billy. They have a hard time getting an education. In radio, Billy adds, the public can't see us, so when we grow up we can go on the stage or in vaudeville and become, for all practical purposes "new faces" and "new people."

Billy has continued right along in school. The teachers have let him get time during the day when he has to appear for a radio program. Billy "ran away" with an audition when he was in grammar school. When Vic and Sade was expanded to include a boy character, he was given the part.

Billy is a healthy, brown lad, whose chief interests are dogs and fishing.

Ask for it . . . It's FREE

As a reader of ELECTRICITY ON THE FARM you are entitled to our buyers' information service free of cost. Here is how it works.

Whenever you are seeking information about any piece of equipment or material that you are planning to buy, first look through the advertisements in this issue. They are your best guide.

Then, if you do not find what you want, just use the blank below to tell us what you need and we will see that you get the information you want. That's all there is to it. Easy, simple, and it costs absolutely nothing.

Use the coupon—

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Gentlemen: Please have sent to me, without obligation, information about the following items:

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NOTE: The more specific you can be in detailing the items you are interested in, the more specific we can be in having the correct information sent you.

Questions and Answers

Conducted by R. U. BLASINGAME

Checking Bird Pests

Question: *Will you please let me have information in connection with the following problem:*

I have many thousands of sparrows and blackbirds around my feed lots. I would like to have some information whereby I can either electrocute them or keep them away by electricity. If you cannot answer this, will you please let me know where I can obtain data on the subject?

Answer: I know of no method which employs the use of electricity to keep sparrows or blackbirds away from feed lots. The U.S.D.A. Leaflet No. 61, English Sparrow Control, describes methods for trapping and poisoning English sparrows. This bulletin may be obtained from the Superintendent of Documents, Washington, D. C., for five cents.

Motor for Concrete Mixer

Question: *In your November issue you show a small concrete mixer being run with a motor. Can you tell me what size motor is being used and also, what size pulleys should be used?*

F. F.

Answer: I am unable to furnish the information you desire. However, concrete mixers are made in sizes requiring from ¼ h.p. to 10 h.p. motors. I suggest that you obtain from the manufacturer of the concrete mixer the specifications regarding the revolutions per minute that it should be driven and the size of the motor required to drive it. If you know the required R.P.M. of the mixer pulley, the R.P.M. of the motor, and the diameter of the motor pulley, the size of the mixer pulley can be calculated by the following formula:

(Diameter of motor pulley in inches) x (R.P.M. of motor) = (Diameter of mixer pulley in inches) x (R.P.M. of mixer pulley).

The diameter, or R.P.M., of either pulley may be calculated when the remaining three factors of this formula are known.

Protecting Motors

Question: *I have several times seen mentioned in your magazine a thermal switch for the protection of an electric motor. I burned a pump motor out last winter because of accidentally closing all of the valves. I took this matter up with local utility representatives at different times but have not yet gotten what I need. I have a one-horsepower, 3 phase, 200 volt motor. Can I get a thermal switch for this and how much should it cost?*

C. E. B.

Answer: Fuses installed for the protection of the wiring do not protect a motor connected to the circuit against injury from overloads. The circuit fuses must limit the flow of current in the circuit to the safe capacity of the wire and at the same time must carry the current required by all the equipment connected to the circuit. When a circuit is designed to carry the current for several motors

(*Continued on page 30*)

TRUMBULL
Brooded Chicks
in 1937 Will Be Heavier and Stronger Than Ever — And Cost You 30% Less —
The Results of Better Brooding
with the NEW TRUMBULL
ELECTRIC BROODER
LOWER MORTALITY—LESS LABOR
NO FIRE HAZARD—NO AUXILIARY HEAT
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ANIMAL CLIPPER
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Exclusive Stewart design ball-bearing motor is air cooled and entirely encased in the insulated EASY-GRIP handle that is barely two inches in diameter. Completely insulated — no ground wire required. The fastest clipping, coolest running, easiest-to-use clipper for cows, horses, dogs, mules, etc. Stays sharp longer. A $25 value for $16.95 complete. Slightly higher west of Denver. 100-120 volts. Special voltages slightly higher. At your dealer's or send $1.00. Pay balance on arrival. Send for FREE catalog of Stewart electric and hand power Clipping and Shearing machines. Made and guaranteed by Chicago Flexible Shaft Company, 5524 Roosevelt Road, Chicago, Illinois. 47 years making Quality products.

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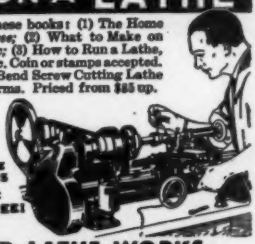
WRITE for these books: (1) The Home Workshop, *free;* (2) What to Make on the Lathe, *10c;* (3) How to Run a Lathe, 160 pages, *25c.* Coin or stamps accepted. Any South Bend Screw Cutting Lathe on easy terms. Priced from $85 up.

Ask for Catalog No. 15 Sent FREE!



SOUTH BEND LATHE WORKS
325 E. Madison Street South Bend, Indiana, U. S. A.

What's New

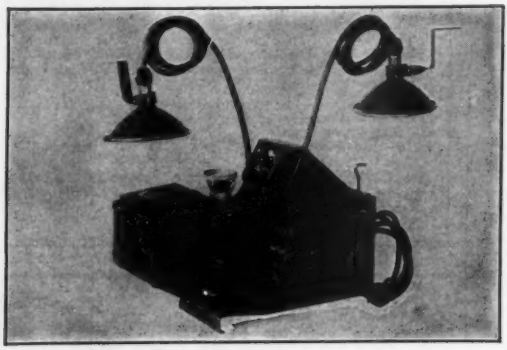
Reviewed by T. E. HIENTON

Names and addresses of manufacturers of the articles described in this column will gladly be furnished upon request. Address your requests to What's New Department, ELECTRICITY ON THE FARM, *24 West 40th Street, New York, N. Y.*

Egg Candler and Grader

Studies made by poultry marketing specialists in Indiana and Iowa have shown that there is approximately 3 cents a dozen greater return to farmers in areas that grade their eggs than in adjacent nongrading areas. Grading of eggs may be done on the farm or by the buyer and involves candling and weighing each egg individually.

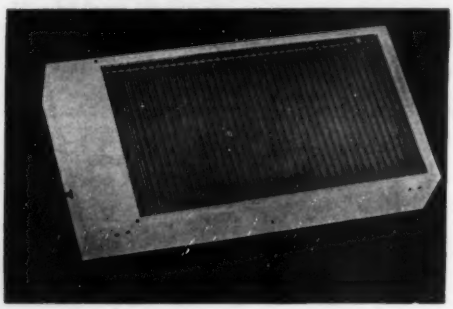
A device which permits candling and weighing



in one operation is now manufactured by a far western manufacture. This combination scales and candler is manufactured in four sizes. Each has a concentrated beam of light for candling and is equipped with a green filter which may be used when desired. The use of the device for weighing eggs in darkened rooms is made possible by electric illumination of small indicator buttons which indicate the various weight grades.

Electric Fly Screen and Trap

Flies are always a nuisance around the house where they are attracted by fragrant odors from the kitchen. In the stables they annoy livestock during summer months and again in the fall, being attracted then by the warmer temperature inside the barns. Electric traps and screens have proven to be particularly effective in reducing the annoyance to humans and livestock by electrocuting the flies.



A western company manufactures both electric traps and electric screens for killing flies according to a recent announcement. Both screens and traps are operated directly from 110 volt, 50 or 60 cycle alternating current. A built-in transformer reduces the electric current to a tiny static charge, according to the manufacturer, which is reported to be harmless to humans, but fatal to insects. The fly trap is made in two sizes 12 by 24 by 3¾ inches and 7 by 13 by 3¾ inches respectively.

Questions and Answers

(*Continued from page 29*)

it is obvious that if only one motor is operating it can be greatly overloaded without blowing the fuses. A motor while starting requires several times its normal operating current. Therefore, fuses large enough to carry the starting currents do not offer adequate protection to the motor after it is in operation.

For adequate protection of a motor some device, such as thermal cutouts or thermal overload relays, should be used which will carry the ordinary starting current for a long enough period of time to enable the motor to start, but which will also break the circuit if too great a current flows over a longer period of time. Several of these inverse-time-limit overload protective devices adaptable to the protection of your 3-phase motor are on the market and your local electrical equipment dealer, or an electrical equipment manufacturer, can supply you with one. Such a switch for a three-phase motor will cost from about $3.00 to $16.00 depending upon whether it is of the manual or automatic starting type.

CLASSIFIED ADVERTISING

LYON ELECTRIC BROODERS ARE BUILT TO GIVE YOU THE BEST IN BROODING. The exceptional success, economy and long life of Lyon Brooders are the natural result of years of specialization. Imitators come and go but the Lyon stays because of essential patents and experience. The Lyon Free Advising Service offers valuable help on brooding, heating and ventilation problems. This service is not duplicated by any other manufacturer. WRITE FOR FREE CATALOG OF ELECTRIC POULTRY SUPPLIES including PROVEN FAN BROODERS, incubators, time switches, water heaters, etc., LYON ELECTRIC CO., Dept. EF, San Diego, Calif.

WRITE FOR BROWER'S New Big Supply Catalog and Poultry Guide. Shows largest line of poultry equipment in world; over 425 items; including Electric Fountains, Brooders, Incubators, Lighting Devices. Filled with poultry information. Low prices—Big Savings—Write today. BROWER MFG. CO., Dept. N30, Quincy, Ill.

OUR SANITARY ELECTRIC BROODERS operate even on a house meter MUCH cheaper than gas hovers, etc. Defects of all brooders combined eliminated. Amazing results with chicks, turkeys, quail. Five sizes, also battery brooders. Literature Free. SAUER BROS., MFRS., 14820-M Foothill Blvd., Oakland, California.

COVER TITLE CONTEST

DECEMBER COVER

RULES
February Title Contest

Ten cash prizes will be awarded for the 10 best titles for the picture on the front cover of this magazine.

The first prize will be $20 cash, and nine second prizes of $2 in cash will be awarded.

In case of a tie, each winning contestant will receive the full cash prize to which he or she is entitled.

Title should be brief—the shorter the better.

All members of the farm family to whom this magazine was sent may submit title, but each contestant may submit only one title.

Question "A" must be answered.

Entries must be sent to the Title Editor, ELECTRICITY ON THE FARM, 6 North Michigan Avenue, Chicago, Illinois, before March 1st.

Winning names and titles will be announced in the April issue.

Send your title on the coupon or make out a similar form on a plain sheet of paper or government postcard.

First Prize for December—$20

"Good as new, but out of the race;
Electric trains now set the pace."

MRS. RENA PRESLEY, R.F.D. 1, Pangburn, Ark.

Nine $2.00 Prizes for December

"Retired, not fired, by the streamlined electrics."
THORNTON K. BROWN, R.F.D. 1, Walden, N. Y.

"The Iron Horse has had its day—
'All aboard!' the 'lectric way."
MRS. AUSTIN FARNSWORTH, R.F.D. 1, West Rumney, N. H.

"With their favorite toy electrified,
Holiday joys are magnified."
JOHN H. ANNIS, R.F.D. 3, Chillicothe, Ohio

"This old antique is much too slow,
Let's press the button and watch them go."
ROBERT F. ULRICH, R.F.D. 1, Clayton, Ohio

"Old and new pass in review as electric toys make Christmas joys."
CLARA S. OVERLOCK, Washington, Me.

"Streamlined trains electrically run,
Will bring boys training, knowledge and fun."
MRS. P. P. PATTERSON, R.F.D. 2, Granton, Wis.

"'Round the Bend'—via the modern electrical trend!"
MRS. WILLIAM ARMSTRONG, R.F.D. 3, Kansas City, Mo.

"Evolution of the iron horse,
By the use of electricity, of course."
DAVID WEITZEL, R.F.D. 1, Loveland, Colorado

"Take the steam engine back,
Electricity is on the track."
MRS. HARVEY H. BERKEY, Elton, Pa.

My title for the Front Cover picture on ELECTRICITY ON THE FARM for February is

.....

.....

(a) Please mark X after the editorial features which members of your family are reading and consider interesting and valuable. If there are any you think we should eliminate, please cross out.

On the Air (Radio).....	*Household Section*	.....
Questions and Answers..	*Dairy Articles*	.....
What's New	*Poultry Articles*	.....

My name is.....*R.F.D.*.....

Post Office.....*County*.....*State*.....2-37

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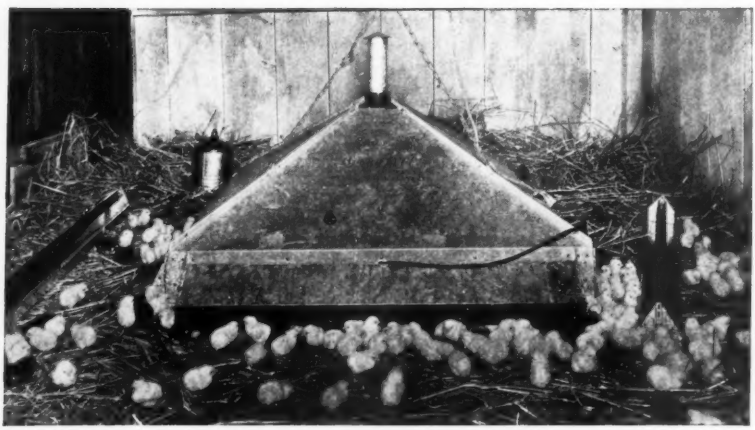

ASK YOUR POWER COMPANY

or your poultry equipment dealer if you need further information. Or, if you prefer, address your inquiries to ELECTRICITY ON THE FARM, *24 W. 40th St., New York, or 6 No. Michigan Ave., Chicago.*

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